

NWA 2646
Lherzolitic Shergottite
 9.3 grams

Introduction

NWA 2646 is allegedly a piece of a larger specimen from an unknown location in Morocco or Algeria (Bunch et al. 2005). It is a relatively coarse-grained lherzolite shergottite. Maskelynite is rimmed with weathering or alteration products.

Petrography

Bunch et al. (2005) have described NWA 2646 as a “plagioclase-olivine clinopyroxenite akin to lherzolitic shergottites” (see mode determined by them below). They note that the rock may be modally heterogeneous. Chadocrysts of olivine, augite and chromite are enclosed in larger oikocrysts of zoned pigeonite. Laths of maskelynite occur interstitially.

Thin rims of alteration or weathering are found on the maskelynite. They are reportedly made up of a fine-grained mixture calcite, hydrous Al silicate and very minor calcium chloride, which appear to be replacing the maskelynite.

Mineralogical Mode for NWA 2646

Olivine	21.6 vol. %
Pigeonite	40.7
Augite	24.3
Maskelynite	11.4
Chromite	2
Ilmenite	tr.
Pyrrhotite	tr.
“weathering”	tr.

Mineral Chemistry

Olivine: Bunch et al. (2005) determined Fo_{62-56} . FeO/MnO = 35-56.

Pyroxenes: Augite is $\text{Wo}_{26-36}\text{En}_{81-77}$. FeO/MnO = 22-27.

Pigeonite is $\text{Wo}_{5.7-12.1}\text{En}_{76-66}$. FeO/MnO = 26-32.

Maskelynite: Plagioclase was ~An 60.

Whole-rock Composition

none

Radiogenic Isotopes

None

Other Isotopes

Oxygen isotopes (not yet)

Processing

It is reported that this sample may be part of a larger specimen.